

REMARKS

The Official Action mailed November 27, 2007, has been received and its contents carefully noted. This response is filed within three months of the mailing date of the Official Action and therefore is believed to be timely without extension of time. Accordingly, the Applicant respectfully submits that this response is being timely filed.

The Applicant notes with appreciation the consideration of the Information Disclosure Statements filed on October 23, 2003; and December 16, 2004.

Claims 1-8 and 12-27 were pending in the present application prior to the above amendment. Claims 12-19 have been canceled without prejudice or disclaimer; claims 1-8 and 20-27 have been amended to better recite the features of the present invention; and new dependent claims 28-30 have been added to recite additional protection to which the Applicant is entitled. Accordingly, claims 1-8 and 20-30 are now pending in the present application, of which claims 1-8 are independent. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

The Official Action rejects claims 1-8 and 12-27 as obvious based on U.S. Publication No. 2005/0087772 to Yamazaki. The Applicant respectfully submits that a *prima facie* case of obviousness cannot be maintained against the independent claims of the present application.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some reason, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some reason to do so found either explicitly or implicitly in the references themselves or in the knowledge generally

available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims.

Claims 1 and 2 recite that an area of the mask is at most 15% of an area of the substrate. Claim 3 recites that an area of at least one of the first mask and the second mask is at most 35% of an area of the substrate. Claim 4 recites that an area of the mask is at most 35% of an area of the substrate. Claim 5 recites that an area of the first mask is at most 20% of an area of the substrate, and that an area of the second mask is at most 15% of an area of the substrate. Claim 6 is similar to claim 5 and further recites heating the masks, and 40% and 35% instead of 20% and 15%, respectively. Claim 7 is similar to claim 5 and further recites a current density of at least $15\mu\text{A}/\text{cm}^2$. Claim 8 includes the features of claims 6 and 7.

Independent claims 1-8 have been amended to recite an active matrix display device in the preamble.

Claims 1, 2 and 4 have been amended to recite forming a pixel electrode over a semiconductor, where the pixel electrode is electrically connected with an area of the semiconductor where an impurity element is added, which is supported in the present specification, for example, by page 18, lines 19-20. New dependent claims 28-30, which depend from claims 1, 2 and 4, respectively, are directed to a method where an area of the pixel electrode is not covered with a mask.

Claim 3 has been amended to recite that an area of a first mask and a second mask are different from each other, which is supported in the present specification, for example, by page 17, lines 15-20. Claims 5-8 have been amended to recite that an

area of a first mask is larger than an area of a second mask, which is supported in the present specification, for example, by page 17, lines 15-20.

Amended independent claims 3 and 5-8 further clarify the present invention in that they are directed to a method where an area of a mask is changed in accordance with an impurity element. That is, the first mask is provided at one size for a first impurity, and the second mask is provided at a second ("different") size for a second impurity.

The Applicant respectfully submits that Yamazaki '772 does not teach or suggest the above-referenced features. Since Yamazaki '772 does not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained.

Furthermore, there is no proper or sufficient reason, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Yamazaki '772 or to combine reference teachings to achieve the claimed invention. MPEP § 2142 states that the examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. It is respectfully submitted that the Official Action has failed to carry this burden. While the Official Action relies on various teachings of the cited prior art to disclose aspects of the claimed invention and asserts that these aspects could be modified in the manner asserted in the Official Action, it is submitted that the Official Action does not adequately set forth why one of skill in the art would combine the references to achieve the features of the present invention.

The test for obviousness is not whether the references "could have been" combined or modified as asserted in the Official Action, but rather whether the references should have been. As noted in MPEP § 2143.01, "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (emphasis in original). Thus, it

is respectfully submitted that the standard set forth in the Official Action is improper to support a finding of *prima facie* obviousness.

The Official Action implicitly concedes that Yamazaki '772 fails to teach or suggest that an area of the mask is at most 15% of an area of the substrate; that an area of at least one of the first mask and the second mask is at most 35% of an area of the substrate; that an area of the mask is at most 35% of an area of the substrate; or that an area of the first mask is at most 20% of an area of the substrate, and that an area of the second mask is at most 15% of an area of the substrate (or 40% and 35% instead of 20% and 15%, respectively). Without any specific references to Yamazaki '772 in support and without statements which establish the level of ordinary skill in the art at the time of the present invention, the Official Action asserts that "[it] would have been obvious ... to make the first or second mask at least 15% or 20-40% at most, of the substrate area, and use an acceleration voltage of at least 60keV or 80keV, since [it] has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art" (page 3, Paper No. 20071124; emphasis added). In order to make this assertion, the Official Action would need to first recognize the "general conditions" of the Applicant's claims. For at least this reason, the Applicant respectfully disagrees and traverses the assertions in the Official Action.

As set forth in MPEP § 2144.05, "[a] particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation." In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). In the present application, the Applicant respectfully submits that the Official Action has failed to sufficiently show that one of skill in the art at the time of the present invention would have recognized that the ratio of an area of a mask with respect to an area of a substrate is a result-effective variable which achieves a recognized result. The ratio of an area of a mask with respect to an area of a substrate

is important to solve, for example, a degassing problem in the prior art. Specifically, one of the features in the present invention is that degasification of a resist during the addition of an impurity element is reduced by reducing an area of a resist pattern. The Official Action has not demonstrated that an area of a mask with respect to an area of a substrate is important, much less that the area of the mask should be at most 15%-35% of an area of a substrate. In general, one of ordinary skill in the art at the time of the present invention is motivated to form the mask of sufficient size and shape to achieve the formation of the underlying device (i.e. to dope or etch an appropriate pattern). The Official Action or prior art does not seem to provide a suggestion or teaching of any problem with respect to the mask being too large or that this problem should be solved by controlling the size of the mask relative to the size of the overall substrate.

Therefore, the Applicant respectfully submits that the Official Action has not provided a proper or sufficient reason, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Yamazaki '772 or to combine reference teachings to achieve the claimed invention.

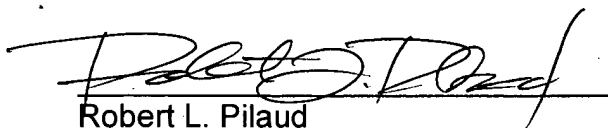
In the present application, it is respectfully submitted that the prior art of record, either alone or in combination, does not expressly or impliedly suggest the claimed invention and the Official Action has not presented a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

For the reasons stated above, the Official Action has not formed a proper *prima facie* case of obviousness. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

New dependent claims 28-30 have been added to recite additional protection to which the Applicant is entitled. The features of claims 28-30 are supported in the present specification, for example in Figure 10A. For at least the reasons noted above, the Applicant respectfully submits that new claims 28-30 are in condition for allowance.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Robert L. Pilaud', written over a horizontal line.

Robert L. Pilaud
Reg. No. 53,470

Robinson Intellectual Property Law Office, P.C.
PMB 955
21010 Southbank Street
Potomac Falls, Virginia 20165
(571) 434-6789